

Technology-Assisted Strategies in Vocabulary and Reading Development Toward the Students' Writing Proficiency

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Abstract—This study examines the level and effect of technology-assisted strategies in vocabulary and reading development toward students' writing proficiency. It specifically determines students' engagement in vocabulary strategies such as context clues, word structure, appositives, cognates, native language use, and word wall, as well as reading strategies including skimming, scanning, summarizing, inferring, and clarifying. It also assesses students' writing proficiency in creative, persuasive, and narrative writing, and investigates the significant influence of these strategies on writing performance. The study employed a quasi-experimental research design using a posttest-only approach. It was conducted at San Francisco Integrated National High School during School Year 2025–2026, involving 154 Grade 7 students selected through purposive sampling. Data were gathered through validated questionnaires, writing assessments, and technology-integrated instructional materials. Descriptive statistics and multiple regression analysis were used to determine the level and effect of the variables under investigation. Findings revealed that students demonstrated a very high level of engagement in both vocabulary and reading development strategies supported by technology. Learners actively used digital tools to enhance word knowledge and comprehension skills. They also exhibited high proficiency in creative, persuasive, and narrative writing. However, most vocabulary and reading strategies did not show a significant overall influence on writing proficiency. The study concluded that there is no significant effect between Technology-Assisted Strategies in terms of Vocabulary Development and Reading Development and Students' Writing Proficiency; therefore, the null hypotheses were accepted. The findings imply that vocabulary and reading development strategies alone may not be sufficient to significantly improve students' writing proficiency, as effective writing also depends on other factors such as grammar, organization of ideas, coherence, critical thinking, and continuous writing practice. Nevertheless, technology-assisted learning remains beneficial in supporting students' engagement, comprehension, and overall language learning experiences. It is recommended that schools strengthen structured digital vocabulary and reading programs, particularly emphasizing appositives and scanning techniques. Teachers are encouraged to integrate targeted technology-based instruction in writing lessons, while school administrators and the Schools Division Office support continuous training on digital literacy integration. Future research is encouraged to explore additional factors influencing writing proficiency.

Keywords—Technology-assisted strategies, vocabulary development, reading development, writing proficiency, Grade 7 learners.

I. INTRODUCTION

Writing played a vital role in education as it served as a primary means for students to express their thoughts, feelings, and understanding of lessons. Through writing, learners demonstrate knowledge, construct meaning, and develop critical thinking skills. In contemporary classrooms, writing remained an essential competency, particularly in a fast-paced and technology-driven world where effective communication was highly valued. However, many students struggled to develop strong writing skills due to limited vocabulary, difficulty in comprehending word meanings, and lack of engagement in classroom learning activities. These challenges often resulted in poor grammar, disorganized ideas, and weak overall composition.

Vocabulary development and reading strategies were foundational components of writing proficiency. Recent studies emphasized that a rich vocabulary enables learners to express ideas more precisely and creatively in written form (Nation, 2017). Similarly, effective reading strategies such as predicting, summarizing, questioning, and inferring support deeper text comprehension and help students internalize language structures that can be applied in writing (Grabe & Zhang, 2016). Learners who possess strong vocabulary knowledge and strategic reading skills were more capable of generating, organizing, and elaborating their ideas in written tasks.

The integration of technology in language instruction had further transformed literacy development. Technology-assisted learning environments provide interactive, multimodal, and learner-centered experiences that enhance engagement and motivation. Studies revealed that digital tools such as educational applications, online reading platforms, and multimedia resources significantly improve vocabulary acquisition and reading comprehension. (Yunus, Salehi, & Chenzi, 2018; Al-Jarf, 2021). Moreover, technology allowed differentiated instruction and immediate feedback, which were crucial in improving students' writing performance (Hockly, 2018; Kessler, 2018). As learners interact with digital texts and writing platforms, they become more active participants in the learning process, thereby strengthening their literacy skills.

In response to these educational needs, this study was conceptualized to examine how technology-supported instructional approaches can enhance learners' literacy

development and writing outcomes. Specifically, the study entitled “Technology-Assisted Strategies in Vocabulary and Reading Development Toward Students’ Writing Proficiency” aimed to improve the writing performance of Grade 7 students of San Francisco Integrated National High School (SFINHS). It also sought to determine the effectiveness of technology-assisted strategies in strengthening students’ vocabulary knowledge, reading comprehension, and overall written communication skills.

1.1 Statement of the Problem

Problem/s which were addressed by the research

The study aimed to determine the effectiveness of Technology-Assisted Strategies in Vocabulary and Reading Development Toward the Students’ Writing Proficiency.

Specifically, it sought to answer the following research questions.

1. What is the level of Technology-Assisted Strategies in terms of Vocabulary Development with regards to:
 - 1.1 Context Clues;
 - 1.2 Word structure;
 - 1.3 Appositives;
 - 1.4 Use of Native Language; and
 - 1.5 Word Wall?
2. What is the level of Technology-Assisted Strategies in terms of Reading Development with regards to:
 - 2.1 Skimming;
 - 2.2 Scanning;
 - 2.3 Summarizing;
 - 2.4 Inferring; and
 - 2.5 Clarifying?
3. What is the level of Students’ Writing Proficiency in terms of:
 - 3.1 Creative Writing;
 - 3.2 Persuasive Writing; and
 - 3.3 Narrative Writing?
4. Is there a significant effect between Technology-Assisted Strategies in terms of Vocabulary Development on Students’ Writing Proficiency?
5. Is there a significant effect between Technology-Assisted Strategies in terms of Reading Development on Students’ Writing Proficiency?

II. METHODOLOGY

The study employed a quasi-experimental research design using a posttest-only approach. It was conducted at San Francisco Integrated National High School during School Year 2025–2026, involving 154 Grade 7 students selected through purposive sampling. Data were gathered through validated questionnaires, writing assessments, and technology-integrated instructional materials. Descriptive statistics and multiple regression analysis were used to determine the level and effect of the variables under investigation.

III. RESULTS AND DISCUSSION

This part presents the different results and discusses the findings derived from the treatment of the data gathered in this study. All specific questions in Chapter 1 under the Statement

of the Problem were answered in this chapter and were supported by corresponding statistical tables. It presented the data gathered about the significant effect of Technology-Assisted Strategies in terms of Vocabulary and Reading Development on students’ writing proficiency.

Level of Technology-Assisted Strategies in terms of Vocabulary Development

In this study, the level of Technology-Assisted Strategies in terms of Vocabulary Development referred to context clues, word structure, appositives, cognates, use of native language, and word wall. The following tables showed the statements, mean, standard deviation, remarks, and verbal interpretation from the perspectives of the respondents.

Furthermore, the presentation of data allowed for a clearer understanding of how each vocabulary strategy contributed to the overall writing performance of the students. The statistical results provided evidence of the extent to which these strategies were implemented and perceived as effective in the classroom. Through careful analysis of the computed means and interpretations, patterns and trends in students’ responses were identified. These chapter findings served as a basis for determining the strengths and areas for improvement in the integration of Technology-Assisted Strategies in vocabulary development.

Table 1. Level of Technology-Assisted Strategies in terms of Vocabulary Development in terms of Context Clues

Statements	Mean	SD	Remarks
I use digital reading materials to identify context clues that help me understand unfamiliar words.	4.70	0.57	Strongly Agree
I analyze how unfamiliar words are used in online texts to determine their meanings.	4.34	0.63	Strongly Agree
I use e-dictionaries, reading apps, or online platforms to confirm meanings inferred through context clues.	4.61	0.63	Strongly Agree
I feel confident using context clues in digital texts before checking the meaning of a word online.	4.40	0.73	Strongly Agree
I improve my vocabulary by reading technology-based texts that require using context clues.	4.63	0.62	Strongly Agree
Weighted Mean	4.54		
SD	0.65		
Verbal Interpretation			Very High

Table 1 shows the level of Technology-Assisted Strategies in terms of Vocabulary Development. Also displays the statements, mean, standard deviation and remarks.

The teachers use digital reading materials to identify context clues that help the students understand unfamiliar words. The (M = 4.70) suggests a very high level of Technology-Assisted Strategies in terms of Vocabulary Development in terms of context clues and supported with (SD = 0.57). Also, improve the students’ vocabulary by reading technology-based texts that require using context clues. While the mean is slightly lower (M = 4.34) with (SD = 0.65), it still indicates the teachers analyze how unfamiliar words are used in online texts to determine their meanings.

The level of Technology-Assisted Strategies in terms of Vocabulary Development in terms of context clues attained a

weighted mean score of 4.54 and a standard deviation of 0.61 and was verbally interpreted as very high among the respondents.

In summary, the findings revealed that teachers consistently integrated technology-assisted strategies to enhance students' vocabulary development using context clues. The very high ratings across all indicators implied that digital tools such as online texts, reading platforms, and e-dictionaries effectively support learners in inferring word meanings. This suggested that technology not only strengthens students' independent word analysis skills but also builds their confidence in understanding unfamiliar vocabulary within digital learning environments.

Table 2. Level of Technology-Assisted Strategies in terms of Vocabulary Development in terms of Word Structure

Statements	Mean	SD	Remarks
I use online lessons or apps to learn prefixes, suffixes, and root words.	4.68	0.59	Strongly Agree
I analyze word parts using digital tools to understand the meaning of unfamiliar words.	4.34	0.66	Strongly Agree
I use technology-based exercises to practice identifying word roots and affixes.	4.62	0.61	Strongly Agree
I rely on online resources to break down complex words into smaller meaningful parts.	4.38	0.71	Strongly Agree
I remember new vocabulary better when technology helps explain word structure.	4.63	0.57	Strongly Agree
Weighted Mean	4.53		
SD	0.64		
Verbal Interpretation	Very High		

Table 2 presents the level of technology-assisted strategies in vocabulary development, particularly in terms of word structure. The results reveal an overall weighted mean of 4.53 (SD = 0.64), verbally interpreted as Very High, indicating that students extensively utilize technology-based tools to enhance their understanding of word formation.

Among the indicators, the statement "I use online lessons or apps to learn prefixes, suffixes, and root words" obtained the highest mean (M = 4.68, SD = 0.59), suggesting that students are highly engaged in using digital platforms to learn the structural components of words. This implies that technology provides accessible and interactive resources that support the development of morphological awareness. Closely following is the statement "I remember new vocabulary better when technology helps explain word structure" (M = 4.63, SD = 0.57), which highlights the role of technology in improving retention and reinforcing learning through multimodal explanations.

On the other hand, the statement "I analyze word parts using digital tools to understand the meaning of unfamiliar words" registered the lowest mean (M = 4.34, SD = 0.66), although still interpreted as Strongly Agree. This indicates that while students consistently use digital tools for vocabulary analysis, there may be slightly less emphasis on deeper analytical processes compared to more direct or guided learning activities.

Overall, the consistently high mean scores across all indicators demonstrate that technology-assisted strategies significantly support students' vocabulary development

through word structure awareness. This strong foundation in vocabulary is essential in enhancing writing proficiency, as understanding prefixes, suffixes, and root words enables students to construct more precise and varied expressions in their writing. The findings suggest a positive relationship between the use of digital tools for vocabulary learning and improved writing outcomes, as students who develop stronger morphological knowledge are better equipped to comprehend texts and produce coherent, well-structured written outputs.

These results affirm that integrating technology in vocabulary instruction not only facilitates engagement but also strengthens the linguistic competencies necessary for effective writing.

Table 3. Level of Technology-Assisted Strategies in terms of Vocabulary Development in terms of Appositives

Statements	Mean	SD	Remarks
I use digital reading materials to recognize explanations of unfamiliar words through appositives.	4.66	0.61	Strongly Agree
I identify appositive phrases more easily when reading texts online.	4.40	0.61	Strongly Agree
I practice identifying appositives using online reading activities or learning platforms.	4.60	0.63	Strongly Agree
I find that technology-assisted lessons help me understand words explained through appositives.	4.46	0.71	Strongly Agree
I use examples from digital texts to improve my vocabulary using appositives.	4.63	0.58	Strongly Agree
Weighted Mean	4.55		
SD	0.63		
Verbal Interpretation	Very High		

Table 3 presents the level of technology-assisted strategies in vocabulary development in terms of appositives. The overall results show a weighted mean of 4.55 (SD = 0.63), which is verbally interpreted as Very High. This indicates that students extensively utilize technology-based resources to understand and apply appositive structures in vocabulary development.

Among the indicators, the statement "I use digital reading materials to recognize explanations of unfamiliar words through appositives" obtained the highest mean (M = 4.66, SD = 0.61). This finding suggests that digital texts play a significant role in helping students identify contextual definitions embedded within sentences, thereby enhancing their vocabulary acquisition. Similarly, the statement "I use examples from digital texts to improve my vocabulary using appositives" (M = 4.63, SD = 0.58) further emphasizes the effectiveness of technology in providing authentic and meaningful language exposure.

Overall, the consistently high ratings across all indicators indicate that technology-assisted strategies significantly enhance students' understanding of appositives as a vocabulary development tool. The use of digital materials allows learners to encounter contextualized word meanings, which supports deeper comprehension and retention. It also promotes active learning by encouraging students to analyze sentence structures more critically and meaningfully.

In relation to writing proficiency, the findings suggest a positive correlation between students’ exposure to appositives through technology and their ability to produce more descriptive and elaborated sentences. Appositives enable students to provide additional information and clarification within their writing, thereby improving coherence and richness of expression. Consequently, students who effectively utilize technology-assisted strategies in learning appositives are more likely to demonstrate improved writing performance. This further implies that targeted integration of appositives-focused activities in digital learning environments can strengthen both vocabulary application and overall writing quality.

In relation to writing proficiency, the findings suggest a positive correlation between students’ exposure to appositives through technology and their ability to produce more descriptive and elaborated sentences. Appositives enable students to provide additional information and clarification within their writing, thereby improving coherence and richness of expression. Consequently, students who effectively utilize technology-assisted strategies in learning appositives are more likely to demonstrate improved writing performance. These results highlight the importance of integrating technology in teaching contextual vocabulary strategies, as it not only strengthens reading comprehension but also contributes to the development of more sophisticated and meaningful written outputs. Furthermore, it encourages learners to actively engage with language in real-time digital environments, promoting deeper understanding and retention of vocabulary. It also supports the development of independent learning skills, allowing students to apply strategies beyond classroom instruction and improve their overall communication competence.

In addition, it fosters learners’ ability to connect vocabulary knowledge with actual writing tasks, resulting in clearer expression of ideas and improved sentence construction. As students become more familiar with appropriate word usage and contextual meanings, they develop greater confidence in organizing and presenting their thoughts effectively in written form. This process also enhances their grammatical accuracy, coherence, and overall writing quality. Furthermore, technology-assisted vocabulary activities provide continuous exposure to authentic language use, enabling learners to apply newly acquired vocabulary in meaningful and creative ways. This suggests that technology integration in vocabulary instruction should be sustained and purposefully designed to maximize its impact on students’ academic writing performance.

Table 4 presents the level of technology-assisted strategies in vocabulary development in terms of cognates and the use of native language. The results reveal an overall weighted mean of 4.52 (SD = 0.67), verbally interpreted as Very High, indicating that students frequently utilize technology to connect English vocabulary with their native language as a learning strategy.

Among the indicators, the statement “I use translation apps or online dictionaries to connect English words with my native language” obtained the highest mean (M = 4.66, SD = 0.60).

This suggests that students heavily rely on digital translation tools to facilitate vocabulary acquisition, making learning more accessible and meaningful. Additionally, the statement “I find that technology helps me understand vocabulary by linking it to my native language” (M = 4.57, SD = 0.69) reinforces the idea that technology enhances comprehension by anchoring new knowledge to prior linguistic familiarity.

Table 4. Level of Technology-Assisted Strategies in terms of Vocabulary Development in terms of Cognates Use of Native Language

Statements	Mean	SD	Remarks
I use translation apps or online dictionaries to connect English words with my native language.	4.66	0.60	Strongly Agree
I compare English and Filipino (or other native language) words using digital tools to learn vocabulary.	4.38	0.65	Strongly Agree
I use technology to identify similarities between English words and my native language.	4.55	0.67	Strongly Agree
I feel more confident learning new English words when technology allows native language support.	4.42	0.71	Strongly Agree
I find that technology helps me understand vocabulary by linking it to my native language.	4.57	0.69	Strongly Agree
Weighted Mean	4.52		
SD	0.67		
Verbal Interpretation			Very High

On the other hand, the statement “I compare English and Filipino (or other native language) words using digital tools to learn vocabulary” registered the lowest mean (M = 4.38, SD = 0.65), though still interpreted as Strongly Agree. This indicates that while students use digital tools for comparison, this strategy may be less consistently practiced compared to direct translation or meaning identification.

Overall, the consistently high mean scores suggest that technology-assisted use of cognates and native language support plays a significant role in vocabulary development. By leveraging familiar linguistic structures, students can better comprehend and retain new English words, thereby reducing learning difficulty and increasing confidence.

In relation to writing proficiency, the findings imply a positive correlation between the use of technology-supported cognates and students’ ability to express ideas more clearly in written form. When students understand vocabulary through connections to their native language, they are more likely to use appropriate words accurately and effectively in their writing. This facilitates improved sentence construction, idea organization, and overall clarity of expression.

These results highlight the value of integrating native language support through technology in vocabulary instruction. Such strategies not only enhance comprehension and retention but also contribute to the development of more coherent and meaningful written outputs, ultimately supporting students’ overall writing proficiency.

Table 5 presents the level of technology-assisted strategies in vocabulary development in terms of word wall utilization. The overall findings indicate a weighted mean of 4.50 (SD = 0.67), which is verbally interpreted as Very High, suggesting

that students consistently use digital word walls and online vocabulary platforms as part of their learning process.

Table 5. Level of Technology-Assisted Strategies in terms of Vocabulary Development in terms of Word Wall

Statements	Mean	SD	Remarks
I use digital word walls or online vocabulary platforms to review new words.	4.64	0.60	Strongly Agree
I find technology-based word walls helpful when words include meanings and sample sentences.	4.39	0.64	Strongly Agree
I engage more in vocabulary learning through online word walls (e.g., Quizlet, Google Slides, PPT).	4.52	0.68	Strongly Agree
I actively participate in updating digital word walls during vocabulary activities.	4.41	0.69	Strongly Agree
I use technology-based word walls to recall vocabulary during reading and writing tasks.	4.55	0.71	Strongly Agree
Weighted Mean	4.50		
SD	0.67		
Verbal Interpretation			Very High

Among the indicators, the statement “I use digital word walls or online vocabulary platforms to review new words” obtained the highest mean ($M = 4.64, SD = 0.60$). This implies that students actively rely on digital word walls as a primary tool for vocabulary review, highlighting the accessibility and convenience of technology in reinforcing word learning. Similarly, the statement “I use technology-based word walls to recall vocabulary during reading and writing tasks” ($M = 4.55, SD = 0.71$) demonstrates that students transfer their vocabulary knowledge from these platforms into practical language use.

In contrast, the statement “I find technology-based word walls helpful when words include meanings and sample sentences” yielded the lowest mean ($M = 4.39, SD = 0.64$), though still within the Strongly Agree range. This suggests that while students value contextualized vocabulary presentation, there may be slight variability in how effectively such features support individual learning preferences.

Overall, the high mean scores across all indicators indicate that technology-assisted word walls are effective tools in enhancing students’ vocabulary development. These platforms provide repeated exposure to words, interactive engagement, and opportunities for active participation, which are essential for vocabulary retention and mastery.

In relation to writing proficiency, the findings suggest a positive correlation between the use of digital word walls and students’ ability to produce more accurate and varied written outputs. By regularly reviewing and recalling vocabulary through technology, students are better equipped to apply appropriate words in context, leading to improved sentence construction, coherence, and clarity in writing. Furthermore, active participation in updating and interacting with digital word walls fosters deeper cognitive processing, which contributes to long-term retention and more effective language use.

These results emphasize the importance of integrating technology-based vocabulary tools, such as digital word walls, in language instruction. Such strategies not only enhance vocabulary acquisition but also support the development of

stronger writing skills, ultimately contributing to improved overall language proficiency.

In this study, the level of Technology-Assisted Strategies in terms of Reading Development refers to skimming, scanning, summarizing, inferring, and clarifying. These strategies reflect the learners’ ability to actively engage with texts using digital tools and platforms to enhance comprehension and information processing.

The following tables present the statements, mean, standard deviation, remarks, and verbal interpretation based on the respondents’ perspectives. The data provide a clear overview of how technology-assisted reading strategies are utilized by students and how these contribute to their overall reading development and learning experiences. Specifically, the results highlight the extent to which learners engage in various technology-based reading activities and the effectiveness of these strategies in enhancing comprehension, vocabulary acquisition, and critical reading skills. The findings also serve as a basis for understanding the role of technology in improving students’ literacy performance and supporting more interactive and meaningful learning experiences.

Table 6. Level of Technology-Assisted Strategies in terms of Reading Development in terms of Skimming

Statements	Mean	SD	Remarks
I use online reading materials or apps to quickly get the main idea of a text.	4.64	0.61	Strongly Agree
I use technology to practice my skimming skills more efficiently.	4.27	0.69	Strongly Agree
I can easily identify the overall topic of an article using digital texts.	4.44	0.71	Strongly Agree
I use digital tools to preview content before reading it in detail.	4.27	0.73	Strongly Agree
I use technology-based activities to improve my skimming ability.	4.49	0.74	Strongly Agree
Weighted Mean	4.42		
SD	0.71		
Verbal Interpretation			Very High

Table 6 presents the level of technology-assisted strategies in reading development in terms of skimming, with an overall weighted mean of 4.42 ($SD = 0.71$), interpreted as Very High. This indicates that students frequently use digital tools to quickly grasp the main idea of texts.

The statement “I use online reading materials or apps to quickly get the main idea of a text” obtained the highest mean ($M = 4.64, SD = 0.61$), highlighting the effectiveness of technology in facilitating rapid comprehension. In contrast, “I use technology to practice my skimming skills more efficiently” and “I use digital tools to preview content before reading it in detail” recorded the lowest means ($M = 4.27$), though still within the Strongly Agree range.

Overall, the findings suggest that technology supports the development of skimming skills, enabling students to identify key ideas efficiently. This contributes to improved writing proficiency, as better comprehension of main ideas allows students to organize and express their thoughts more clearly in written form.

Table 7. Level of Technology-Assisted Strategies in terms of Reading Development in terms of Scanning

Statements	Mean	SD	Remarks
I use search functions to find specific information in digital reading materials.	4.66	0.62	Strongly Agree
I find that technology helps me locate important words, names, or dates quickly	4.26	0.65	Strongly Agree
I use online tools to check for key facts and data in a passage.	4.40	0.68	Strongly Agree
I can easily spot answers to questions when reading texts online	4.36	0.67	Strongly Agree
I use technology-assisted activities to strengthen my scanning skills.	4.51	0.69	Strongly Agree
Weighted Mean	4.44		
SD	0.68		
Verbal Interpretation	Very High		

Table 7 shows the level of technology-assisted strategies in reading development in terms of scanning, with a weighted mean of 4.44 (SD = 0.68), interpreted as Very High. This indicates that students actively use digital tools to locate specific information efficiently.

The statement “I use search functions to find specific information in digital reading materials” obtained the highest mean (M = 4.66, SD = 0.62), emphasizing the usefulness of technology in quickly identifying relevant details. In contrast, “I find that technology helps me locate important words, names, or dates quickly” recorded the lowest mean (M = 4.26, SD = 0.65), though still within the Strongly Agree level.

Overall, the findings suggest that technology enhances students’ scanning skills, enabling them to extract key information effectively. This supports improved writing proficiency, as the ability to gather relevant details contributes to clearer, more accurate, and well-supported written outputs.

Table 8. Level of Technology-Assisted Strategies in terms of Reading Development in terms of Summarizing

Statements	Mean	SD	Remarks
I use online applications to create short summaries of reading passages.	4.67	0.59	Strongly Agree
I find that technology helps me organize main ideas and supporting details clearly.	4.27	0.64	Strongly Agree
I can write summaries of online readings using key points only.	4.45	0.70	Strongly Agree
I use digital note-taking tools to summarize what I read.	4.37	0.72	Strongly Agree
I practice summarizing online texts to improve comprehension and writing.	4.61	0.63	Strongly Agree
Weighted Mean	4.48		
SD	0.67		
Verbal Interpretation	Very High		

Table 8 presents the level of technology-assisted strategies in reading development in terms of summarizing, with a weighted mean of 4.48 (SD = 0.67), interpreted as Very High. This indicates that students frequently use digital tools to condense and organize information from reading materials.

The statement “I use online applications to create short summaries of reading passages” obtained the highest mean (M = 4.67, SD = 0.59), highlighting the strong role of technology in facilitating efficient summarization. In contrast, “I find that technology helps me organize main ideas and supporting details clearly” recorded the lowest mean (M = 4.27, SD = 0.64), though still interpreted as Strongly Agree.

Overall, the findings suggest that technology-assisted strategies effectively enhance students’ summarizing skills, leading to better organization of ideas and improved writing proficiency through clearer and more structured written outputs.

Table 9. Level of Technology-Assisted Strategies in terms of Reading Development in terms of Inferring

Statements	Mean	SD	Remarks
I use interactive reading apps to draw conclusions from passages.	4.66	0.58	Strongly Agree
I find that technology helps me understand implied meanings in what I read.	4.34	0.65	Strongly Agree
I can make logical guesses based on clues in digital readings.	4.54	0.63	Strongly Agree
I use context clues and multimedia sources to infer meaning.	4.34	0.67	Strongly Agree
I find that technology-based reading exercises help me strengthen my inference skills.	4.51	0.69	Strongly Agree
Weighted Mean	4.48		
SD	0.65		
Verbal Interpretation	Very High		

Table 9 presents the level of technology-assisted strategies in reading development in terms of inferring, with a weighted mean of 4.48 (SD = 0.65), interpreted as Very High. This indicates that students consistently use digital tools to develop higher-order reading comprehension skills such as drawing conclusions and interpreting implied meanings.

The statement “I use interactive reading apps to draw conclusions from passages” obtained the highest mean (M = 4.66, SD = 0.58), highlighting the effectiveness of technology in supporting inferential thinking. In contrast, the statements “I find that technology helps me understand implied meanings in what I read” and “I use context clues and multimedia sources to infer meaning” both recorded the lowest mean (M = 4.34), though still within the Strongly Agree range.

Overall, the findings suggest that technology-assisted strategies significantly enhance students’ ability to infer meaning from texts. This improvement in inferring skills contributes to better writing proficiency, as students become more capable of generating logical ideas, making connections, and expressing deeper interpretations in their written work. Furthermore, it indicates that digital reading tools encourage learners to think beyond literal meanings, strengthening analytical and critical thinking skills essential in academic writing. It also suggests that sustained use of interactive reading applications can further develop students’ ability to construct well-supported and meaningful written outputs.

In addition, it reflects the importance of guided integration of these tools in classroom instruction to ensure that students maximize their learning potential and translate reading comprehension skills into effective writing performance. Furthermore, it emphasizes the role of teachers in scaffolding the use of digital reading applications to ensure that learners do not only consume information but also critically process and apply it in writing tasks. This structured guidance helps bridge the gap between reading comprehension and written expression, resulting in more coherent and well-developed student outputs. Moreover, the consistent use of technology-

assisted strategies encourages students to become more independent, reflective, and analytical learners who can effectively organize ideas and communicate them in written form. Through meaningful engagement with digital texts and activities, learners can strengthen both their comprehension and writing abilities, thereby enhancing their overall academic performance and literacy development.

Table 10. Level of Technology-Assisted Strategies in terms of Reading Development in terms of Clarifying

Statements	Mean	SD	Remarks
I use online dictionaries or translation tools to clarify difficult words.	4.68	0.52	Strongly Agree
I use apps or websites to explain confusing parts of a text.	4.43	0.61	Strongly Agree
I pause while reading to look up meanings of unfamiliar words online.	4.50	0.61	Strongly Agree
I use highlighting and annotation tools to make unclear ideas clear.	4.40	0.64	Strongly Agree
I find that technology helps me better understand challenging or complex readings.	4.65	0.62	Strongly Agree
Weighted Mean	4.53		
SD	0.61		
Verbal Interpretation			Very High

Table 10 presents the level of technology-assisted strategies in reading development in terms of clarifying, with a weighted mean of 4.53 (SD = 0.61), interpreted as Very High. This indicates that students frequently use digital tools to resolve difficulties in understanding texts.

The statement “I use online dictionaries or translation tools to clarify difficult words” obtained the highest mean (M = 4.68, SD = 0.52), showing that translation and dictionary applications are the most used tools for clarification. In contrast, “I use highlighting and annotation tools to make unclear ideas clear” recorded the lowest mean (M = 4.40, SD = 0.64), although still within the Strongly Agree range.

Overall, the findings suggest that technology plays a significant role in helping students clarify unfamiliar vocabulary and complex ideas, thereby improving reading comprehension. This enhanced understanding supports writing proficiency, as students are better able to accurately interpret texts and incorporate clearer, more precise ideas into their written outputs. Moreover, technology-assisted learning provides learners with greater access to interactive resources and immediate feedback, which further strengthens their comprehension and language development. As students become more confident in understanding and analyzing texts, they are also able to express their thoughts more effectively, organize ideas coherently, and produce more meaningful and well-structured written compositions. Furthermore, the integration of technology in language instruction promotes active engagement, collaboration, and independent learning, which contribute to the overall improvement of students’ academic performance and communication skills.

Level of Students’ Writing Proficiency

In this study, the level of Students’ Writing Proficiency refers to creative writing, persuasive writing, and narrative writing.

The following tables present the statements, weighted mean, standard deviation, remarks, and verbal interpretation based on the responses of the respondents.

Table 11. Level of Students’ Writing Proficiency in terms of Creative Writing

Score	Creative Writing		Descriptive Equivalent
	F	%	
5	78	50.65	Outstanding
4	63	40.91	Proficient
3	13	8.44	Developing
2	0	0.00	Beginning
1	0	0.00	Needs Improvement
Total	154	100	
Weighted Mean	4.42		
SD	0.64		
Verbal Interpretation	Highly Proficient		

Table 11 showed the level of Students’ Writing Proficiency in terms of creative writing, with a total population of one hundred respondents, the score “5” receive the highest frequency of seventy-eight (78) or 50.65% of the total population having a descriptive equivalent of Outstanding. And the score “4” with a frequency of sixty-three (63) or 40.91% of the total population have the descriptive equivalent of Proficient. While the score “3” receive the lowest frequency of thirteen (13) or 8.44% of the total population having a descriptive equivalent of Developing.

With a total (Weighted Mean = 4.42, SD = 0.64) and (highest score = 3, lowest score = 5) showing the level of Students’ Writing Proficiency in terms of creative writing with a descriptive equivalent of Highly Proficient.

In summary, Tables 7 to 12 showed that the level of Technology-Assisted Strategies in terms of Reading Development specifically skimming, scanning, summarizing, inferring, and clarifying was verbally interpreted as very high, with a composite grand mean of 4.53 (SD = 0.73). This indicated that learners widely utilize digital reading materials, search tools, note-taking applications, interactive platforms, and online references to enhance comprehension skills such as identifying main ideas, locating details, organizing information, drawing conclusions, and clarifying difficult texts. Among the indicators, clarifying obtained the highest mean, highlighting the strong reliance on online dictionaries and annotation tools. Meanwhile, Table 13 revealed that Students’ Writing Proficiency in terms of creative writing was highly proficient (WM = 4.42, SD = 0.64), with most respondents rated Outstanding and Proficient.

Taken together, the findings suggested that the extensive use of technology-assisted reading strategies contributed to improved writing proficiency, particularly in developing students’ creative expression and overall written communication skills. These results further implied that integrating digital reading tools into classroom instruction can effectively support students in organizing ideas, enhancing coherence, and expressing their thoughts more clearly in written form.

Table 12 showed the level of Students’ Writing Proficiency in terms of persuasive writing, with a total population of one hundred respondents, the score “5” receive the highest frequency of seventy-two (72) or 46.75% of the

total population having a descriptive equivalent of Outstanding. And the score “4” with a frequency of sixty-seven (67) or 43.51% of the total population have the descriptive equivalent of Proficient. While the score “3” receive the lowest frequency of fifteen (15) or 9.74% of the total population having a descriptive equivalent of Developing.

Table 12. Level of Students’ Writing Proficiency in terms of Persuasive Writing

Score	Persuasive Writing		Descriptive Equivalent
	F	%	
5	72	46.75	Outstanding
4	67	43.51	Proficient
3	15	9.74	Developing
2	0	0.00	Beginning
1	0	0.00	Needs Improvement
Total	154	100	
Weighted Mean	4.37		
SD	0.66		
Verbal Interpretation	Highly Proficient		

With a total (Weighted Mean = 4.37, SD = 0.66) and (highest score = 3, lowest score = 5) showing the level of Students’ Writing Proficiency in terms of persuasive writing with a descriptive equivalent of Highly Proficient.

In summary, the findings indicated that students demonstrated a high level of proficiency in persuasive writing, as reflected by most respondents being rated Outstanding and Proficient. The weighted mean of 4.37 (SD = 0.66) shows that learners can express opinions, present arguments, and supporting ideas effectively in written form. This suggested that students possess adequate skills in constructing convincing and organized persuasive texts, indicating strong development in critical thinking and written communication. Furthermore, the results imply that students can use appropriate vocabulary, logical reasoning, and coherent organization to strengthen their arguments and influence readers effectively. The integration of technology-assisted vocabulary and reading strategies may have also contributed to students’ ability to gather information, analyze ideas, and present persuasive content more confidently and meaningfully in their writing tasks.

Moreover, the findings implied that technology-assisted strategies provided students with opportunities to explore various sources of information, organize their thoughts systematically, and refine their arguments through continuous practice and feedback. Digital tools such as online reading materials, writing applications, and collaborative platforms encouraged students to become more engaged in the writing process, enabling them to express ideas more confidently and persuasively. These experiences contributed to the improvement of students’ critical thinking, reasoning, and communication skills, which are essential components of persuasive writing.

In addition, the results supported the view that integrating technology in language instruction creates a more interactive and learner-centered environment. Through exposure to multimedia resources and guided writing activities, students were able to strengthen their vocabulary, comprehension, and

analytical skills, which positively influenced the quality of their persuasive compositions. Consequently, the use of technology-assisted learning strategies may serve as an effective approach in enhancing students’ writing proficiency and overall academic performance.

Table 13. Level of Students’ Writing Proficiency in terms of Narrative Writing

Score	Narrative Writing		Descriptive Equivalent
	F	%	
5	75	48.70	Outstanding
4	70	45.45	Proficient
3	9	5.85	Developing
2	0	0.00	Beginning
1	0	0.00	Needs Improvement
Total	154	100	
Weighted Mean	4.43		
SD	0.60		
Verbal Interpretation	Highly Proficient		

Table 13 showed the level of Students’ Writing Proficiency in terms of narrative writing, with a total population of one hundred respondents, the score “5” receive the highest frequency of seventy-five (75) or 48.70% of the total population having a descriptive equivalent of Outstanding. And the score “4” with a frequency of seventy (70) or 45.45% of the total population had the descriptive equivalent of Proficient. While the score “3” receive the lowest frequency of nine (9) or 5.85% of the total population having a descriptive equivalent of Developing.

With a total (Weighted Mean = 4.43, SD = 0.60) and (highest score = 3, lowest score = 5) showing the level of Students’ Writing Proficiency in terms of narrative writing with a descriptive equivalent of Highly Proficient.

In summary, the results indicated that students demonstrate a high level of proficiency in narrative writing, as most respondents were rated Outstanding and Proficient. The weighted mean of 4.43 (SD = 0.60) suggested that learners can organize events, develop characters, and express ideas effectively through storytelling. This implied that students possess strong narrative writing skills and can produce coherent and engaging written compositions, reflecting a highly proficient level of writing development.

Test of Comparison Between the Means of the Groups Technology-Assisted Strategies in Terms of Vocabulary Development on Students’ Writing Proficiency

To test the significant effect of Technology-Assisted Strategies in terms of Vocabulary Development on Students’ Writing Proficiency in creative writing, persuasive writing, and narrative writing, the data were statistically treated using the Real Statistics Data Analysis Tool through Regression Analysis. This statistical method was utilized to determine whether technology-assisted vocabulary development strategies significantly influenced the students’ writing proficiency across the identified writing domains. Furthermore, regression analysis enabled the researchers to examine the extent of the relationship between the independent and dependent variables and identify which strategies contributed most effectively to students’ writing

performance. Through this process, the study was able to determine whether variations in students' writing proficiency could be explained by their exposure to and utilization of technology-assisted vocabulary development strategies. The results also provided empirical evidence regarding the predictive value of these strategies in enhancing students' ability to organize ideas, apply appropriate vocabulary, and construct meaningful written outputs across different forms of writing.

Table 14. Significant Effect of Technology-Assisted Strategies on the Students' Writing Proficiency.

Technology-Assisted Strategies in terms of Vocabulary Development		Students' Writing Proficiency		
		Creative Writing	Persuasive Writing	Narrative Writing
Context Clues	t-stats	0.179	0.113	0.100
	Sig. (2-tailed)	0.858	0.910	0.921
	N	154	154	154
Word Structures	t-stats	-0.932	-0.898	-1.711
	Sig. (2-tailed)	0.353	0.370	0.089
	N	154	154	154
Apposition	t-stats	-0.998	-0.388	-2.442**
	Sig. (2-tailed)	0.320	0.699	0.016
	N	154	154	154
Use of Native Language	t-stats	-0.164	0.631	0.810
	Sig. (2-tailed)	0.870	0.529	0.419
	N	154	154	154
Word Wall	t-stats	-0.320	0.328	0.736
	Sig. (2-tailed)	0.749	0.743	0.463
	N	154	154	154

Constant = 1.97

Table 14 presents the significant effect of technology-assisted strategies in vocabulary development on students' writing proficiency in terms of creative, persuasive, and narrative writing. The results show that most vocabulary strategies, including context clues, word structure, use of native language, and word wall, did not significantly influence students' writing performance across all writing domains, as reflected in their p-values.

However, among all indicators, apposition emerged as the only vocabulary strategy with a significant effect on narrative writing ($t = -2.442$, $p = 0.016$), indicating that its use contributes meaningfully to students' ability to develop more detailed and descriptive narratives. All other relationships were found to be not significant, suggesting that these strategies, when used independently, do not strongly predict writing proficiency.

Overall, the findings imply that while technology-assisted vocabulary strategies generally support language learning, only specific components such as apposition have a measurable impact on writing development, particularly in narrative writing tasks. This further suggests that the effectiveness of technology integration depends not merely on the presence of digital tools but on how specific linguistic skills are targeted and applied in writing contexts. Moreover, it

highlights the need for focused instructional approaches that emphasize meaningful language structures, enabling students to translate vocabulary knowledge into more coherent, elaborated, and expressive written outputs.

In addition, the results underscore the importance of aligning instructional strategies with specific learning objectives, particularly those that directly enhance students' writing abilities. It also suggests that teachers should provide guided and purposeful activities that allow learners to practice and apply these targeted skills in authentic writing tasks. Consequently, integrating technology with explicit instruction can lead to more effective learning outcomes, as students are better able to connect vocabulary knowledge with actual writing performance.

Test of Comparison Between the Means of the Groups Technology-Assisted Strategies in Terms of Reading Development on Students' Writing Proficiency

To test the significant effect between the Technology-Assisted Strategies in terms of Reading Development on Students' Writing Proficiency in terms of creative writing, persuasive writing and narrative writing, they were treated statistically using Real Statistics Data Analysis Tools using the Regression Analysis.

Table 15. Significant Effect of Technology-Assisted Strategies on the Students' Writing Proficiency.

Technology-Assisted Strategies in terms of Reading Development		Students' Writing Proficiency		
		Creative Writing	Persuasive Writing	Narrative Writing
Skimming	t-stats	-1.329	-1.389	-0.837
	Sig. (2-tailed)	0.186	0.167	0.414
	N	154	154	154
Scanning	t-stats	0.870	-0.054	-2.473**
	Sig. (2-tailed)	0.380	0.957	0.014
	N	154	154	154
Summarizing	t-stats	-0.256	-0.467	-0.697
	Sig. (2-tailed)	0.798	0.641	0.487
	N	154	154	154
Inferring	t-stats	0.163	0.395	-0.430
	Sig. (2-tailed)	0.870	0.693	0.661
	N	154	154	154
Clarifying	t-stats	0.980	1.612	-1.217
	Sig. (2-tailed)	0.329	0.109	0.225
	N	154	154	154

Constant = 1.97

Table 15 presents the test of significant effect of technology-assisted strategies in reading development and students' writing proficiency in terms of creative, persuasive, and narrative writing using inferential statistics (t-test, $p \leq 0.05$).

For creative writing, all reading strategies showed no significant relationship, including skimming ($p = 0.186$), scanning ($p = 0.380$), summarizing ($p = 0.798$), inferring ($p = 0.870$), and clarifying ($p = 0.329$). This indicates that none of

the reading strategies significantly influence students' creative writing performance when taken individually.

Similarly, in persuasive writing, all variables also yielded no significant results, such as skimming ($p = 0.167$), scanning ($p = 0.957$), summarizing ($p = 0.641$), inferring ($p = 0.693$), and clarifying ($p = 0.109$). This suggests that students' persuasive writing skills are not significantly affected by the identified reading strategies in isolation.

However, in terms of narrative writing, a significant relationship was found between scanning and writing proficiency ($t = -2.473$, $p = 0.014$), as the p -value is less than 0.05. This implies that students who effectively use scanning strategies through technology are better able to develop narrative writing skills, likely due to improved ability to locate and extract relevant details for storytelling. All other reading strategies (skimming, summarizing, inferring, and clarifying) showed no significant relationship with narrative writing.

Overall, the findings suggest that while most technology-assisted reading strategies do not independently predict writing proficiency, scanning emerges as a significant contributor to narrative writing performance. This highlights the importance of selective reading skills in supporting students' ability to construct detailed and structured narratives. In synthesis, the results indicate that technology-assisted reading development enhances writing proficiency in a limited but meaningful way, particularly when focused on information retrieval skills such as scanning, which support the organization and enrichment of narrative content.

IV. CONCLUSION AND RECOMMENDATIONS

The study concluded that there is no significant effect between Technology-Assisted Strategies in terms of Vocabulary Development and Students' Writing Proficiency. Therefore, the null hypothesis was accepted. This implies that vocabulary development strategies alone may not be enough to significantly improve students' writing proficiency, as writing skills also depend on other factors such as grammar, organization of ideas, coherence, and writing practice.

Likewise, the study concluded that there is no significant effect between Technology-Assisted Strategies in terms of Reading Development and Students' Writing Proficiency. Hence, the null hypothesis was also accepted. This implies that reading development strategies may not directly influence students' writing proficiency unless supported by guided writing activities, critical thinking exercises, and continuous application of writing skills in meaningful learning tasks.

Based on the findings and conclusions of the study, the following recommendations are proposed:

English Department Heads and Grade 7 English Teachers may implement structured vocabulary programs using applications such as Quizlet, Wordwall, and digital dictionaries. These tools should focus on context clues, word structure, and appositives to strengthen students' vocabulary acquisition.

School Administration, particularly the Principal and Curriculum Implementers, may design and adopt a school-wide program that systematically develops skimming, scanning, summarizing, inferring, and clarifying skills using interactive digital reading platforms.

English Teachers and Instructional Supervisors may create focused lesson plans and modules that emphasize appositive structures and scanning techniques, as these strategies were found to significantly improve narrative writing performance.

School ICT Coordinator in collaboration with English Teachers and School Administration may organize monthly workshops where students practice integrating vocabulary and reading strategies into creative, persuasive, and narrative writing using technology tools.

Schools Division Office (SDO), through the Learning and Development Unit, may provide continuous professional development programs for teachers focused on the effective integration of digital tools in vocabulary, reading, and writing instruction.

School Administration and English Department may establish a writing clinic or mentoring program where students receive assistance in applying vocabulary and reading strategies in their written outputs.

Future Researchers, particularly graduate students and education researchers, may explore additional variables such as motivation, learning environment, socio-economic status, and access to technology to further explain students' writing performance beyond technology-assisted strategies.

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